

The Role of Statistics in National Development with Reference to Botswana and Nigeria Statistical Systems

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Abstract

This paper discusses the importance of statistics and statisticians in national development with emphasize that government at all levels should embark on building a very viable information system in order to have adequate statistical information for designing a formidable evidence based policy. Given the relevant statistics cited from both Botswana and Nigeria statistical database, this study identifies that no meaningful national development can take place without empowering the national statistical system. In national development, the aspirations of a policy is to attain national goals and to achieve a fair measure of success in the goals, there is need to map out strategic plans, set up machinery for execution of the plans and monitor the implementation process; this is exactly the point at which the role of statistics is vital and relevant.

Keywords: National Development, Statistical system, Statistical Acts and Evidence based policy

1. Introduction

Governments, private companies, NGOs and private individuals alike have to decide on important issues on a regular basis; such decisions making require information and frequently needs to be transparent evidenced based in order to be accepted by the wider community. No argument is evidenced based without figures to back it up. These figures must be collected, analyzed and presented using non-partisan, reliable and repeatable approaches. Presentation of such figures is designed to keep us informed of the situation in the world around us (D K Shangodoyin and D A Agunbiade, 1999), by this we can justify some proposal or criticism, or at least to place a discussion in the proper perspective.

Generally speaking, statisticians are exponents of facts and figures to their immediate community. For instance statisticians could use the result of opinion polls as a base to advance the predictions of the outcome of election or the results of a pilot census to advance the predictions of population census. These predictions are meaningful if every literate resident of a community is able to understand and interpret the information presented to him but to enhance this, some rudimentary knowledge of statistics is obviously desirable as it helps for better understanding of the underlying phenomena.

Statistics is an indispensable tool for national development, growth and planning and a government without viable infrastructure for information generation, dissemination and usage is severely handicapped in doing proper planning, monitoring and evaluation of development programmes and projects and also in arriving at good decision with respect to their government policy formation.

Governments at all levels should embark on building a very viable information system in order to have adequate statistical information for designing a formidable social and economic policy. It has been advocated that the National statistical system in any country should get more attention if the country is to have an orderly and definite development programme (United Nations Resolution on World Statistics Day, 2010)(Ward, M, 2004).

In national development, the aspirations of a policy should be to attain such goals as full employment, price stability, and economic growth, equilibrium in the balance of payment, equitable distribution of income, educational development, social security, political stability and so on. To achieve a fair measure of success in the goals stated, there is need to map out strategic plans, set up machinery for execution of the plans and monitor the implementation process; this is exactly the point at which the role of statistics is vital and relevant.

This paper consists of an introductory part in section 1; the relevance of statistics and statisticians in national development is discussed in section 2. Statistical information and national development are discussed in section 3. The stages required in the production of reliable statistics is featured in section 4, while the statistical systems for data production in Nigeria is articulated in section 5 and the concluding part of this paper is in section 6.

2. Role of Statistics and Statisticians in National Development

Monitoring is a continuous process that requires data which is generated to assist in establishing whether planned targets are likely to be achieved or not. This is another area where Statistics plays an important role. In monitoring and evaluation of ongoing economic reform programmes of the governments in Botswana and Nigeria, statistical data is at the same time imperative as it will provide the necessary information on performance indicators which serve to measure the impact of policy and programmes on the quality of life of target populations.

The various issues facing Botswana, such as HIV/AIDS pandemic, shortage of skilled professional in technology, sciences and medicine, unemployment and in Nigeria issues like public debt, globalization, unemployment and reformed of social programmes require statistics that will provide insight into the underlying realities. The provision of such strategic information in the context of declining resources is the major challenge for National Statistical Offices. The situation of course calls for priority setting, by this we mean identifying the new information to be produced; the dissemination approaches to be favoured; the means of optimizing operational efficiency and of reducing response burden, and the programme reductions made by budget constraints. Priority setting is based on judgment rather than mechanical approaches. The inputs used to influence judgment are therefore very important and obtained through statistical data.

It must be emphasized that statistical information is an input and a vital one, for the efficient operation of economic and social agents in both the private and public sectors. The role of statistics in national development becomes increasingly more complex, its areas of intervention multiply and expansion of National Statistical Offices as well as the regulations on production of statistics becomes more necessary at this point in time for any meaningful social and economic growth to be recorded.

Growth is said to occur when an economy's productive capacity increases and this in turn is used to produce more goods and services in successive time periods. Thus, economic growth is a desirable goal which leads to economic development. However, the challenge of economic development has remained a daunting one for many developing nations such as Botswana and Nigeria. Consequently, development is meaningful only if there is improvement in the quality of life of the people and therefore, there must be defined objectives and goals for development purposes such that:-

- (i) Actions can be guided towards the realization of the set goals,
- (ii) The goals are recognizable and identifiable when they are reached and
- (iii) Performance and results can be meaningfully appraised particularly in the course of movement towards the goals.

Timely, complete, accurate and reliable statistics is critical to creating and sustaining an environment which fosters strong, equitable development, and is an essential ingredient for formulation of sound economic development policies. Thus, for economic management to attain its ultimate goals of sustainable economic development improved societal welfare, equity and other macroeconomic goals, must be based on the availability of timely and reliable aggregate statistical indices such as Gross Domestic (GDP), Inflation Rate, Unemployment Rate, Interest Rate, Income per capita and Balance of Payments to name a few.

From the United Nations view point (Ward, M, 2004), statistics is a pathfinder for solution as well as a veritable tool in assessing the extent or level of national development of an economy in a given period. The national economic policies and complex interactions among various sectors of the economy make it imperative for building up macroeconomic planning models. This kind of model build-up is only possible with statistical information (which is also used in estimating the parameters of the model) enables us to monitor the performance of the economy and the social well-being of the people; the basic statistics required in economic policy formulation include:

- Macroeconomic aggregates (GDP, GNP, Capital Formation, External transactions, input/output coefficients, etc).
- Consumption data (Government & Private)
- Investment Expenditure (Government & Private)
- Import and Exports
- Prices and Inflation
- Industrial Production and Indices
- Energy and Power production/ consumption
- Agricultural and raw Material Production
- Transportation & Communication Indicators
- Government Services
- Housing & Finance
- Interest Rates & Exchange Rates
- Banking & Finance

Also some basic statistics needed in social policy formulation and execution include:

- Basic Statistics on Education
- Health Indicators
- Population Characteristics
- Sanitation and Water Supply Indicators
- Cultural and Immigration Flows
- Religion & Human Rights indicators
- Public order indicators

The role of statistics and indeed of statisticians in national development is very critical. For instance, Income per capita which immediately raises the wider issue of income distribution in a sovereign nation such as Botswana is a topic which generates public interest, especially during budget presentation to the public. It is one topic, which interests everybody, to the extent that almost everybody has a point of view. Yet, the statistician is expected to state and measure the situation as it is. Statistics can reveal to us especially in areas of income policy and any matter relating to economic planning and development that you cannot have peace where there is injustice; for peace and justice are inseparable: a person diseased and malnourished is not at peace, a young man or woman without employment is not at peace. Consequently, a society which has all these afflicting the citizens shall always remain torn by crime, delinquency, violence, cruelty and low development. Thus, statistics on these issues serves as monitoring indicators which are vital for development plans. For instance, it was observed from 2003 poverty datum line (PDL) for Botswana (Central Office of Statistics, 2008) that the incidence of poverty (persons below PDL) was 30.6% in 2002/2003. The sectoral distribution showed that the incidence of poverty in urban areas was 19.4% compared with 44.8% recorded for rural areas. These figures provide a potent tool for policy review of poverty reduction strategies, implementation mechanisms and monitoring and evaluation. This survey also revealed that there were 181402 Households with per capita consumption less than P300 a month, which is 46% of the total number of Households surveyed. In Nigeria, for example, according to year 2009 social statistics report (Social Statistics Report, 2009), it is observed that 65% of Nigeria's households were poor. The sectoral distribution showed that about 74.8% of the urban households were poor while the figure for the rural was 68.9%. These poverty figures provide a potent tool for policy review and implementation for poverty alleviation purposes. This survey also revealed that the average household income for 2009 stood at less than N5, 149.8 per month.

The importance and availability of timely and reliable statistics on socio-economic life of a sovereign nation cannot be over-stressed. For instance, a number of goals have become generally accepted as the objective of economic policy and development. Movement towards their attainment is deemed to lead to macroeconomic stability and increased national welfare. In the case of developing countries like Botswana, the objectives inter alia may include: full employment, or a low level of unemployment, price stability, balance of payments equilibrium, economic growth and development. The first two objectives refer to Internal Balance while the third refers to the External Balance. Full employment has been ranked amongst the foremost objectives of economic policy (C Stijn, D Giovanni, I Deniz and L Luc, 2010), though there is no unanimity on the meaning of full employment. It does not mean zero unemployment; full employment is not always full. It is now agreed that full employment stands for 97-98 percent employment or an unemployment rate of 2-3 percent. The objective of calculating inflation rate (Consumer Price index-CPI) is a measure of monetary stability. An inflation rate of 2-3 percent a year is favored by planners because fluctuation in price brings uncertainty and instability to the economy, with unnecessary loss to some and undue advantages to others. Thus, a policy of price stability keeps the value of money stable, eliminates cyclical fluctuations, brings economic stability, helps to reduce inequalities of income and wealth, secures social justice and promotes economic welfare.

The objectives of calculating the External Balance is equally important because equilibrium is desirable in the balance of payments since a deficit could lead to a drain of a nation's external reserves and/or an accumulation of external debt. A surplus, on the other hand, will lead to an increase in foreign reserves and money supply.

3. Statistical Information and National Development

As already seen above, statistical information is needed for making complex evidence based national decisions; in this millennium planning in developing countries required formulation of goals that is followed by a well thought out programme for execution is of the utmost importance. Planning a nation's economic and social development is complex involving the process of constructing, executing and checking interrelated sets of decisions. The outcome of such series of tasks when prepared for a given period is normally called a Development Plan. Planning has become a permanent part of major government decision making; the integration of the entire exercise necessitates the exercise of a highly organized and well-developed statistical system, without which a planned economy is unthinkable. Such statistical system must make available (for planning and other purposes of government industry and business) a well integrated mass of accurate data at different degrees of aggregation, which can be used at each stage of the plan process (Adamu, S O, 1978). However, planned decisions rely very heavily on high quality statistical data.

National development requires a well organized statistical system allowing planners to work on the broad set of statistical indicators that are indispensable for the development and improvement of planning. In order to involve

the statistical system in the planning and delivery of the designed and desired statistical data, there is need to link statistical planning and national goals as shown in the diagram below:

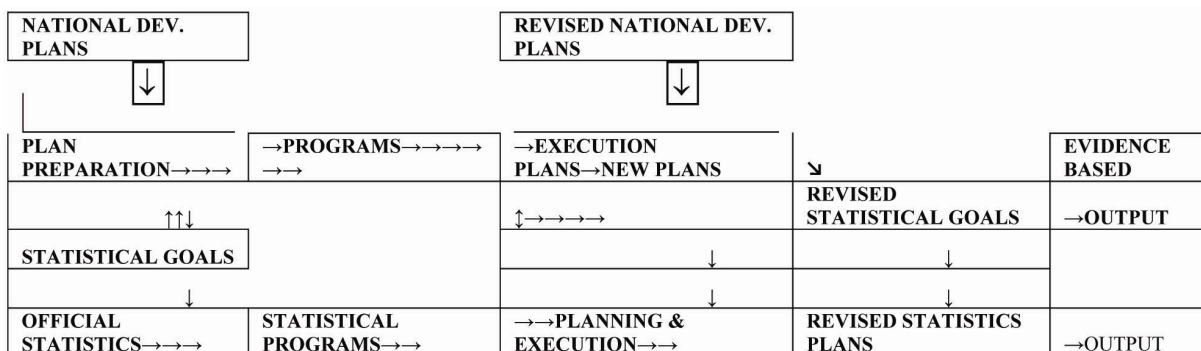


Figure 1. National Development and Statistical Goals

4. Production of Statistics

In order to install a viable infrastructure for statistical production, it is probably necessary to understand the various stages of statistical production. The production process for statistics can be compared with the well known and understood Industrial production process. It begins with planning, statistical/survey designs, data collection, data processing and analysis to report writing and dissemination of final statistical products. Every one of these stages is crucial and important. However, proper planning of a statistical project is extremely crucial for its success. Indeed it has been recommended that if a survey project is to be completed in twelve months of the year, seven of these must be devoted to planning. With good planning, implementation cannot go wrong. Another stage requiring particular attention is the data collection as collected data represent raw material for statistical products. Quality of data must be very high ensuring a minimization of both the sampling error (if a sample approach has been used for data collection) and non-sampling error. Of course, that is not to say that other stages are less important; these stages should be planned for and adequately implemented. Going through these stages, it becomes very obvious that we require adequate time, money, and efficient coordination for data to be produced timely. The success of work of various national statistical systems depends on the timeliness and accuracy of data output are functions of data processing. As shown in figure 2 below, data processing has moved beyond the mere coding, editing, sorting, computing and final publication of data collected. There is also the important matter of data storage and retrieval, together with the deletion of unwanted material and its replacement in revised form. To perform these tasks statisticians require specialists from outside their profession. Some of the most difficult problems in data processing are connected with storage and retrieval. Data storage is an important function of national statistical systems. It is not simply a problem of using tapes and discs and managing variable format records, but of the whole complex area termed database management. The main features of this development are the possibility of storing and having access to large volumes of data on the micro-level, and the increased the increased technical possibility of using data collected for administrative purposes in the statistical production processes.

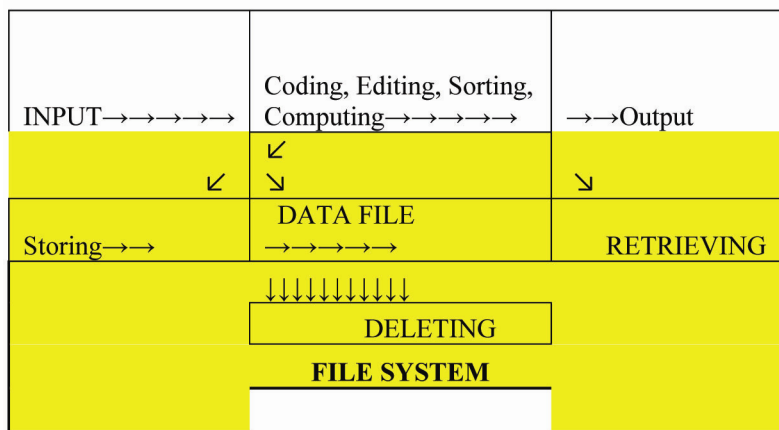


Figure 2. Statistical Data Processing

5. Statistical Systems for Data Production in Nigeria

It is necessary at this stage to understand the sources through which statistics can be procured in order to build systems that can assemble data from these sources. Basically, data could be obtained through a census, a sample survey or through administrative records. The National Bureau of Statistics (NBS) (Formally, Federal Officer of Statistics (FOS)), established for Data collection and analysis, had developed three statistical systems to cover all the range of data required in Nigeria (see Nigerian 1957 statistics ordinance). NBS covers most and household statistics through National Integrated Survey of Household (NISH). This system allows the collection of data through the households and individuals. NISH uses a carefully designed master sample which is normally operated over a period of five years. Information obtained at household level could be via such surveys as those of NISH or through a population census as those taken at interval of ten years. The second system is the National Integrated Survey of Establishments (NISE) through which most of the economic statistics are covered. The coverage of the Establishments or Economic Institutions could be on a sample or census basis. Coverage is also among sectors of the economy spanning manufacturing, distribution, hotels and restaurants, transport and professional services to mention just a few. The third system is the System of Administrative Statistics (SAS). Within this, administrative statistics are generated from administrative records. These records are kept for various reasons ranging from regulatory to monitoring. These records could cover both economic and social data and could be partial covering of a sub-population or the whole population. All these three systems, NISH, NISE and SAS effectively and comprehensively cover all data requirements of the population.

It is appropriate at this time to bring in the roles of users and suppliers of data in the business of data production. Data generation is a joint venture amongst three broad groups of producers (statistical worker), the users and the suppliers of information. Quite often when there is the dearth of data or if quality of available data is not good, the blame for these situations often go to the Statistician; but little do people realize that both the users and suppliers of data contribute to this undesirable situation. Production of good statistics is not possible except users contribute to the development of definitions and concepts including standards for classification and the like. Users must equally carry out analysis of supplied data so as to bring out the understanding and quality of the data. These functions of the users contribute greatly to the overall development of statistics. On the other hand, the role of suppliers of data is very crucial, they need to cooperate in statistical surveys in giving correct information which is vital to quality data for socio-economic growth of Nigeria.

6. Conclusion

We conclude that statistical information serves impetus to the direction, growth and development of a Nation as shown in figure 1. The production of statistics should be legislated for a timely, accurate and effective dissemination of data. In Nigeria, the main provision of the 1957 statistical ordinance (for data collection, particularly population census and the duties of the federal chief statistician) should incorporate the reality of the present e-data needs and dissemination around the world. The Botswana 1967 Statistics Act should be reviewed to enable the National Statistics Office to grow beyond its present formation so as join its comity of National statistical offices in producing timely and accurate data for national, regional and international users.

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